ACC.12
61st Annual Scientific Session & Expo
ACC-i2 with TCT innovation in intervention

E350
JACC March 27, 2012
Volume 59, Issue 13

Acute Coronary Syndromes

TICAGRELOR VERSUS PRASUGREL IN ACUTE CORONARY SYNDROME PATIENTS WITH HIGH ON CLOPIDOGREL TREATMENT PLATELET REACTIVITY POST PCI: A PHARMACODYNAMIC STUDY

ACC Oral Contributions
McCormick Place South, S402
Saturday, March 24, 2012, 9:00 a.m.-9:15 a.m.

Session Title: New Therapeutic Options in ACS: From Antiplatelets to Antibiotics
Abstract Category: 4. Acute Coronary Syndromes: Therapy
Presentation Number: 903-7

Authors: *Dimitrios Alexopoulos, Ioanna Xanthopoulou, Eleni Mavronasiou, Anastasia Galati, George Kassimis, Konstantinos C. Theodoropoulos, George Makris, Anastasia Damelou, Grigorios Tsigkas, Periklis Davlouros, George Hahalis, Patras University Hospital, Patras, Greece*

Background: Newer P2Y12 inhibitors like prasugrel and ticagrelor provide stronger antiplatelet inhibition compared to clopidogrel. Both agents are efficacious in patients with high on clopidogrel treatment platelet reactivity (HTPR), but direct comparison between them has not been reported. We aimed to directly compare the antiplatelet action of ticagrelor versus prasugrel in acute coronary syndrome (ACS) patients with HTPR after percutaneous coronary intervention (PCI).

Methods: This was a single-center, randomized, single-blind, crossover study conducted in 35 (out of 123 screened, 28.5%) ACS patients with HTPR (defined as Platelet Reactivity Units-PRU ≥235 as assessed by the VerifyNow P2Y12 function assay) 24 hours post PCI. Patients with prior stroke, IIb/IIIa inhibitor administration, hemodynamic instability, severe chronic obstructive lung disease and at increased risk for bleeding or bradycardia, were excluded from the study. Randomized patients received either ticagrelor 90 mg twice daily or prasugrel 10 mg once daily for 15 days with a crossover directly to the alternate treatment for another 15 days, without an intervening washout period.

Results: In total, 34 and 28 patients completed the first and the second period of the study respectively. There was no difference in patients' demographic characteristics between groups. Platelet reactivity at randomization was 278.8±37.5 PRU and 274.8±35.7 PRU in the prasugrel and ticagrelor group respectively. The primary end point of platelet reactivity at the end of the two treatment periods was lower for ticagrelor compared to prasugrel (least squares estimates 31.6 PRU, 95%CIs 13.7-49.5 versus 91.6 PRU, 95%CIs 73.5-109.7, p<0.001). No period or carry-over effect was found. No patient exhibited HTPR or a major bleeding event at either treatment group.

Conclusions: In patients with ACS, exhibiting HTPR 24 hours post PCI, ticagrelor produces a significantly higher platelet inhibition compared to prasugrel. Further studies are needed to elucidate whether the pharmacodynamic difference observed translates into difference in clinical efficacy. (ClinicalTrials.gov NCT01360437)